

REMARKS

AMENDMENTS

Specification

The specification has been amended to correct a typographical error. The phrase “and goinic acid” has been deleted from paragraph 34, as the phrase does not name a food grade acid. It is respectfully submits that this deletion adds no new matter to the application and earnestly solicit entry thereof.

Claims

Claim 2 has been amended to correct a typographical error. The phrase “goinic acid” has been deleted from paragraph 34, as the phrase does not name a food grade acid. It is respectfully submits that this deletion adds no new matter to the application and earnestly solicit entry thereof.

Claims 11, 12, and 13 have been amended to more particularly point out and distinctively claim the subject matter in regards to the invention. The claims now clearly recite that citric acid is not added as part of the supplying of the acid. This amendment is supported at paragraph 30 of the specification.

Claims 23 and 27 also have been amended in a manner consistent with the amendments of claims 11, 12, and 13 for the same reason.

Applicants respectfully submit that the amendments add no new matter to the application and earnestly solicit entry thereof.

THE OFFICE ACTION

Claim 2 stands objected to as the phrase “goinic acid” is not understood.

Claims 11-13 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention.

Claims 1-18, 20-24, and 31-35 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Meyer et al. (5,464,793).

Claims 29, 30, and 38-47 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Meyer as applied to the above claims, and in further view of Chang et al. (7,052,725) and Kaji J. (JP 4008767 A).

Claim 19 is objected to as being dependant on a rejected base claim.

Claims 25-28 stand “free of the art”. As these are without formal rejections, these claims are considered allowable. Claim 27 has been amended to clarify it without affecting allowability over the cited documents.

THE INVENTION

The invention is directed in one embodiment to a method for fortifying a fruit juice beverage with calcium. A calcium source is supplied to a juice flow from an upstream in-line mixer to provide a calcium-augmented juice flow. A food grade acid source is supplied from a downstream in-line mixer spaced from the upstream in-line mixer. Acid is incorporated into the calcium-augmented juice flow to form a calcium-fortified juice flow having a component of calcium and acid. The calcium-fortified juice flow is collected as a calcium-fortified fruit

juice beverage.

In another embodiment, the invention is directed to a process for fortifying a not-from-concentrate juice with calcium, as described above.

In other embodiments, the calcium and the acid are separately incorporated under high-shear conditions.

The invention also is directed to fruit juice beverages prepared in accordance with these methods.

THE PRIOR ART

Meyer, U.S. Patent No. 5,474,793, is directed to a process for producing calcium-supplemented not-from-concentrate juice beverage. A not-from-concentrate juice stream containing citric and malic acid is circulated from a blend tank through a turbulent flow mixing zone. A powdered source of calcium is added to the acidified juice in the mixing zone. This calcium supplemented juice thus is recirculated back to the blend tank until the juice comprises from about 0.05 to about 0.26 wt% solubilized calcium (i.e., calcium ion that has been dissolved).

Meyer discloses at column 6, lines 20-36, that the zone at which the calcium is introduced must be a highly turbulent mixing region for acidified juice and a powdered calcium-source. Specifically, in-line mixers are not preferred. Further, “[i]t is also important that the calcium supplemented juice stream be promptly returned to or recirculated through the blend tank containing the remainder of the acidified juice. Failure to promptly return the calcium-supplement to the blend tank may cause degradation of the juice product (i.e. off

flavors, unacceptable aroma, and color changes).” Column 7, lines 2-8. Typical circulation times are between 2 and 5 minutes for 500 gallons.

Chang, U.S. Patent No. 7,052,725, is directed to a method for preparing artificially sweetened, calcium supplemented beverage concentrate. A stabilized solution of at least one calcium salt and at least one edible acid in water is formed. An artificial sweetener is added to the concentrate to form the artificially sweetened, calcium supplemented concentrate.

Kaji, JP 4008767 describes a drink comprising calcium salt of an organic acid, sugar, fruit juice, apple cider vinegar to have pH ~4.0, and 90 wt% water.

THE INVENTION IN VIEW OF THE CITED DOCUMENTS

Applicants respectfully traverse the objections and the rejections. The claims have been amended to correct a typographical error and to more particularly point out and distinctly claim the subject matter applicants regard as the invention. As admitted by the office action, the cited documents do not disclose the invention. Further, it is respectfully submitted that the cited documents, whether considered alone or in the proposed combinations, do not suggest the claimed invention.

Claim 2 has been amended to correct a typographical error, thus putting the claim in condition for allowance. It is respectfully submitted that the objection to this claim be withdrawn.

Claims 11-13 have been amended to more particularly and distinctly claim the invention. Therefore, it is respectfully submitted that the rejection of these claims under 35 U.S.C. § 112, second paragraph, should be withdrawn.

Claims 23 and 27 have also been amended in this way.

Applicants respectfully traverse the rejection to claims 1-18, 20-24, and 31-35 as obvious over Meyer. The office action recognizes that Meyer requires addition of calcium source to juice comprising citric and malic acids. The office action asserts that it would have been obvious to reverse the order by which acid and calcium source are added, absent a showing of unexpected results.

Applicants respectfully submit that this argument fails for a number of reasons. First, the claimed process is not merely “the reverse” of Meyer’s process. Meyer requires a batch process with recirculation from a single tank. In contradiction, the claimed method is a once-through, in-line process. Thus, there is no juice recirculation in the claims of the pending application. Reversing the order of addition of Meyer does not yield the claimed method.

Second, there is no suggestion in the cited document to reverse the order of addition. Indeed, Meyer *requires* that the calcium supplement be added to juice acidified with citric and malic acids. Thus, Meyer teaches away from reversing the order of addition, as is required to make this rejection.

Third, the office action suggests that a showing of unexpected results is required. Applicants respectfully submit that, for at least the two reasons set forth above, no such showing is required to traverse this rejection. However, in any event, such a showing already is set forth in the application at paragraph 55, which states the following:

The calcium solubility was determined to be 95 weigh percent by the approach according to the invention. The reverse order of addition (malic

acid added first, followed by calcium hydroxide by respective in-line mixers) resulted in a calcium solubility of only 81 percent. When they additions were made in accordance with U.S. Patent No. 5,474,793, the calcium solubility was 90 percent.

Also, at paragraph 65, the application includes the following evidence,

In addition, the juice prepared according to the invention was significantly lower in two off-flavor descriptive sensory analysis characteristics. These are “metallic package notes” and “bitterness” characteristics. These negative characteristics were significantly lower when compared with those of juice prepared by the process of the 5,474,793 patent.

Thus, Applicants respectfully traverse this rejection, as the rejection is contrary to the evidence in the application. Applicants respectfully submit that, for these and other reasons, claims 1-18, 20-24, and 31-35 are in condition for allowance. Applicants earnestly seek allowance thereof.

The dependent claims are allowable for the same reasons the independent claims are allowable. However, Applicants note that the office action rejects claims 11-13 because “it would have been obvious to add other acids”. However, these claims have been amended to clarify that citric acid is not added as part of the supplying of the food grade acid. Thus, the point on which the rejection is based is not part of the rejected claims.

Applicants respectfully traverse the rejection of claims 29, 30, and 38-47 as obvious over Meyer, and further in view of Chang and Kaji. With regard to the rejection over Meyer,

Applicants respectfully submit that the claims are allowable for the reasons set forth above.

In particular, the specification includes evidence that the fruit juice beverage claimed herein are different from the products of Meyer.

Further, Applicants respectfully submit that neither Chang nor Kaji provide, as indeed they cannot provide, that which is missing from Meyer. The assertions in the office action relating to proportions and concentrations in the secondary documents simply are not persuasive because the primary document fails to suggest a product which can be further limited in view of the secondary docs. Rather, the specification discloses the patentable distinction between the product of the invention and the product of Meyer, and no relative proportion information from secondary documents can overcome this patentable distinction.

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CONCLUSION

Applicants respectfully submit that the claims are in condition for allowance. The prior art, whether considered individually or in combination as proposed, does not suggest, and certainly does not disclose, the method and product claimed in the pending application. Therefore, Applicants solicit favorable action on the claims.

Respectfully submitted,

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